

CLAIMS

1. A set of laser weldable materials constituting a first resin member, a second resin member and a third resin member in which the first resin member and the second resin member are different materials, the first resin member is non-absorptive of laser light and the second resin member is absorptive of laser light and which is used for laser-welding the three members by overlapping the third resin member with the first resin member and the second resin member and irradiating laser light to the three resin members from said first resin member side, wherein the material constituting the first resin member comprises a first resin non-absorptive of laser light, the material constituting the second resin member comprises a second resin and an additive absorptive of laser light, and the material constituting the third resin comprises a polymer having at least one constitutional unit the same as or analogous to the constitutional unit of the first resin and at least one constitutional unit the same as or analogous to the constitutional unit of the second resin.

2. A set of laser weldable materials constituting a first resin member, a second resin member and a third resin member, respectively, in which the first resin member and the second resin member are different materials and the first resin member is non-absorptive of laser light and which is used for laser-welding the three members by overlapping the third resin member with the first resin member and the second resin member and irradiating laser light to the three resin members from said first resin member side, wherein the material constituting the first resin member comprises a first resin non-absorptive of laser light, the material constituting the second resin member comprises a second resin, the material constituting the third resin member comprises a third resin and an additive absorptive of laser light, and the third resin comprises a polymer

Best Available Copy

having at least one constitutional unit the same as, or analogous to, the constitutional unit of the first resin and at least one constitutional unit the same as, or analogous to, the constitutional unit of the second  
5 resin.

3. The set of laser weldable materials as claimed in claim 1 or 2, wherein the first resin, the second resin and the third resin each is a polyamide.

4. The set of laser weldable materials as claimed  
10 in claim 1 or 2, wherein the combination of the first resin and the second resin is a combination of polyamide 6 and polyamide 12.

5. The set of laser weldable materials as claimed in claim 1 or 2, wherein the material constituting the  
15 first resin member further comprises an additive weakly absorptive of laser light.

6. The set of laser weldable materials as claimed in claim 1 or 2, wherein the third resin is a polyamide 6/12 copolymer nylon.

7. The set of laser weldable materials as claimed  
20 in claim 6, wherein the weight ratio of the polyamide 6 component and the polyamide 12 component in the polyamide 6/12 copolymer nylon is from 20/80 to 80/20.

8. The set of laser weldable materials as claimed  
25 in claim 1 or 2, wherein the material constituting the third resin member has a film shape.

9. The set of laser weldable materials as claimed in claim 8, wherein the film thickness is from 1 to  
1,000  $\mu\text{m}$ .

10. A laser welding method using the set of laser  
30 weldable materials claimed in claims 1 to 9.

11. A laser welding method comprising overlapping a third resin member with a first resin member and a second resin member, which are different materials and in which  
35 the first resin member is non-absorptive of laser light and the second resin member is absorptive of laser light, and irradiating laser light from said first resin member

side to laser-weld the three members, wherein the third resin member comprises a third resin and an additive absorptive of laser light, and the third resin comprises a polymer having at least one constitutional unit the same as or analogous to the constitutional unit of the first resin and at least one constitutional unit the same as or analogous to the constitutional unit of the second resin.

12. A laser welding method comprising overlapping a third resin member with a first resin member and a second resin member, which are different materials and in which the first resin member is non-absorptive of laser light, and irradiating laser light from said first resin member side to laser-weld the three members, wherein the third resin member comprises a third resin and an additive absorptive of laser light, and the third resin comprises a polymer having at least one constitutional unit the same as or analogous to the constitutional unit of the first resin and at least one constitutional unit the same as or analogous to the constitutional unit of the second resin.

13. The laser welding method as claimed in claim 11 or 12, wherein the first resin, the second resin and the third resin each is a polyamide.

14. The laser welding method as claimed in claim 11 or 12, wherein the combination of the first resin and the second resin is a combination of polyamide 6 and polyamide 12.

15. The laser welding method as claimed in claim 11 or 12, wherein the first resin member further comprises an additive weakly absorptive of laser light.

16. The laser welding method as claimed in claim 11 or 12, wherein the third resin is a polyamide 6/12 copolymer nylon.

17. The laser welding method as claimed in claim 16, wherein the weight ratio of the polyamide 6 component and the polyamide 12 component in the polyamide 6/12

copolymer nylon is from 20/80 to 80/20.

18. The laser welding method as claimed in claim 11 or 12, wherein the third resin member is a film.

19. The laser welding method as claimed in claim  
5 18, wherein the film thickness is from 1 to 1,000  $\mu\text{m}$ .